Before the
Federal Communications Commission
Washington, DC 20554

In the matter of	)	
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	

COMMENTS OF LUCENT TECHNOLOGIES INC.

Charles Mathias
Director—Policy
Lucent Global Government Affairs
1100 New York Avenue, NW
Suite 640 West Tower
Washington, DC 20005
202-312-5908

May 28, 2004

Martina Bradford
Tom W. Davidson
Phil Marchesiello
AKIN GUMP STRAUSS
HAUER & FELD LLP
1333 New Hampshire Ave, N.W.
Washington, DC 20036
202-887-4000

Its attorneys

TABLE OF CONTENTS

COMMENTS OF LUCENT TECHNOLOGIES

EXECUTIVE SUMMARY

Lucent Technologies shares the Commission's enthusiasm for the tremendous potential of IP-Enabled Services. They are already transforming the ways that consumers and businesses use communications networks and have the potential to alter and improve the nature, quality and breadth of communications in the US and around the world. Voice over IP may prove to be the application that creates the demand for broadband services that causes broadband providers to expand the reach and capacity of their networks.

To ensure that IP-Enabled Services achieve their full potential, it is critical for the Commission to act expeditiously to create a uniform, fair, efficient, pro-competitive, and above all certain regulatory environment—exclusively at the federal level. Regulatory approaches should be minimal and fundamentally industry driven. They should support important social goals while giving IP-Enabled Services, and the companies that provide them, the latitude to succeed.

Lucent believes that concurrent with the Commission's regulatory analysis, it is in the public interest specifically to assess and address the technical challenges of evolving IP-based infrastructure to "carrier class" in a structured setting to ensure that IP-Enabled Services can be deployed on a national scale with the level of quality of service, network security, and reliability necessary for a critical national infrastructure. A number of technical realities will need to be addressed to achieve this goal.

It is critical for the Commission to be adequately informed about technical challenges and innovations that will shape the service environment that is under regulatory consideration. To help ensure that IP-Enabled Services are appropriately deployed on a national "carrier class" scale, the Commission should engage industry on an ongoing and structured basis on technical issues. The Commission should both monitor and facilitate the migration of the national communications infrastructure to IP-based networks by actively soliciting on a periodic basis technical and other input from the industry regarding the regulation of IP-Enabled Services.

Close collaboration with industry along these lines can be a useful tool for the Commission as IP-Enabled Services and IP networks evolve and thereby raise new regulatory issues under rules drafted to apply to other technologies. Further, such a continuing dialogue will enable the Commission to be a valuable resource and to play a constructive role in any future efforts by Congress to revise the Communications Act of 1934 to take into account new technologies and competitive conditions, including the migration of communications to IP-Enabled Services.

Before the
Federal Communications Commission
Washington, DC 20554

In the matter of	)	
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	

COMMENTS OF LUCENT TECHNOLOGIES

Lucent Technologies Inc. ("Lucent") submits these comments in response to the Notice of Proposed Rulemaking issued by the Federal Communications Commission ("Commission") requesting public comment on issues relating to services and applications making use of Internet Protocol ("IP"), including Voice over IP ("VoIP") services (collectively "IP-Enabled Services").[1]

I. About Lucent

Lucent, headquartered in Murray Hill, New Jersey, designs and delivers the systems, services, and software that drive next-generation communications networks, including networks that rely on IP technology. Backed by Bell Labs research and development, Lucent uses its strengths in mobility, optical, software, data, and voice networking technologies and services to create telecommunications networks that are cost-effective, secure, reliable, and manageable. Lucent enables its customers to quickly deploy and manage their standards-based multi-protocol networks. Lucent's customer base includes telecommunications providers, governments, and enterprises worldwide.

---

[1] *In the Matter of IP-Enabled Services*, WC Docket No. 04-36, *Notice of Proposed Rulemaking*, FCC 04-28 (rel. Mar. 10, 2004) ("NPRM").

Since its inception, Lucent, either directly or through its predecessor companies, has, with its customers, driven the evolution of communications networks in the United States and around the world. Through Bell Labs, Lucent has played a critical role in the development, commercial introduction, and pervasive deployment of numerous innovations, including the transistor, cellular radio technology, electronic switching, the Unix operating system, the C programming languages, the SS7 call management and routing protocol, optoelectronic and photonic integrated circuits, session initiation protocol ("SIP"), soft switches, micro-electro-mechanical ("MEMS") optical switches, and many other technologies that are fundamental to the successful deployment of IP-Enabled Services in modern telecommunications networks. Coupling this experience with continuous discussions with customers, Lucent is well acquainted with the vast potential of IP-Enabled Services to revolutionize telecommunications networks. Similarly, Lucent has a strong understanding of the considerable challenges that will need to be overcome at the technical, regulatory, and commercial levels to ensure that IP-based networks offer the level of service quality, reliability, and security that consumers and businesses expect and receive from today's traditional voice networks.

II. Introduction

Lucent shares the Commission's enthusiasm for the tremendous potential of IP-Enabled Services. As the Commission accurately described in the NPRM, IP-Enabled Services are already transforming the ways consumers and businesses use communications networks. Moreover, IP-Enabled Services have the potential to radically alter and improve the nature, quality, and breadth of communications services available both domestically and worldwide. Yet the benefits that flow from the

introduction of IP-Enabled Services extend far beyond the services themselves. IP-Enabled Services have the potential to drive a revolutionary transformation of the U.S. communications infrastructure that will achieve the pro-competitive goals of the Telecommunications Act of 1996 through market-based, rather than government-mandated, competition and innovation.

Numerous government leaders, including President Bush, have recognized that increased broadband deployment will serve as an economic driver that will have a ripple effect across numerous industries.[2] Next generation communications services, including those associated with VoIP, may be the "killer applications" that will drive meaningful consumer demand for broadband access in the United States. Increased consumer demand, in turn, should cause leading broadband providers to increase investments in their networks to expand the networks' reach and capacity. Simultaneously, new entrants will seek to capture a portion of this market by either improving the efficiencies of today's broadband service, or introducing new, innovative access technologies, such as third generation ("3G") wireless protocol. Going forward, future systems will integrate both wireline and wireless services into coherent packages in a converged service environment. Thus, IP-Enabled Services have the potential to drive the creation of intermodal facilities-based competition in the broadband access market. In addition, these services will draw investment to the development and deployment of innovative technologies, which will, in turn, significantly further the widely

[2] *See* President Outlines Path for Lasting Prosperity in Wednesday Speech, available at http://www.whitehouse.gov/news/releases/2004/04/20040421-5.html; *see also*, White House, A New Generation of American Innovation, April 2004, available at http://www.whitehouse.gov/infocus/technology/economic_policy200404/innovation.pdf.

held objective of providing all Americans, including those in rural and underdeveloped areas, with reliable, high-speed broadband access.

The NPRM primarily focuses on the appropriate regulatory classification of IP-Enabled Services, rather than the technological challenges facing the communications industry as it migrates networks and services to IP. Regulatory considerations should be the Commission's primary concern at this stage in the development of commercial IP-Enabled Services, and Sections III and IV of these comments address certain regulatory issues. However, as an expert in the technologies underlying IP networks and IP-Enabled Services, Lucent believes that it is equally important that the Commission remain apprised of the technical issues that will drive the migration from today's traditional public switched telephone network ("PSTN") to the next generation IP networks. This will help the Commission to better understand the likely technical ramifications of any rules that the Commission promulgates to govern IP-Enabled Services. Further, such knowledge will help the Commission avoid promulgating rules that have unintended or adverse consequences with respect to the continued development of IP networks and services. Consequently, Section V of these comments is devoted to technical issues.

III. The Commission Should Create Regulatory Certainty

Despite tremendous advances in recent years, IP-Enabled Services are merely starting to demonstrate their potential. Therefore, the decisions the Commission makes in the course of this rulemaking are critical. The regulatory and legal framework that is established in this proceeding will have lasting and widespread implications for the

manner in which IP-Enabled Services, and specifically VoIP, will be commercially deployed by providers and adopted by consumers.

The various pending petitions requesting the Commission to rule on the appropriate treatment of VoIP services, along with the NPRM itself, highlight the instability and uncertainty that characterize the regulatory environment surrounding IP-Enabled Services. This uncertainty is damaging all aspects of the telecommunications industry. Service providers and network operators are delaying or abandoning capital projects and delaying the introduction of new services. Due to the unclear regulatory treatment of VoIP, they are unable to confidently apply their business models to determine how and when they will be able to recover their costs or make a reasonable return on their investment in deploying new services. This uncertainty cascades outward to:

- Equipment manufacturers that have to deal with the harsh business realities of limited demand and declining capital expenditures;
- Capital markets that have been slow to support the telecommunications industry, seeking instead to devote their resources to sectors less roiled by legal uncertainty;
- The American people, who have their choices limited by service providers withholding new services; and
- American businesses, which are unable to realize the cost savings and efficiencies these new communications technologies offer.

In spite of this, the telecommunications industry remains a critical driver of the U.S. economy, and the potential presented by IP-Enabled Services promises to drive new innovation and productivity. It is therefore critical for the Commission to act expeditiously to create a uniform, fair, efficient, pro-competitive, and, above all, certain

regulatory environment in order to promote investment. Regulatory certainty will allow carriers, manufacturers, and service providers to plan appropriately and focus on the provision of new, innovative, and cost-effective products and services. While Lucent chooses not to opine on specific regulatory classifications that should apply to IP-Enabled Services, Lucent feels strongly that there should be a single, national regulatory regime.

The regulatory approach adopted by the Commission to govern IP-Enabled Services should be minimal and fundamentally industry-driven. It should support important social policy goals while giving IP-Enabled Services, and the companies that provide them, the latitude to succeed. Further, the Commission must give due consideration to the importance, as a policy priority, of unleashing the creative forces of the market and reinvigorating investments in networks and services that benefit a variety of end users.

The Commission alone cannot provide a complete solution to the problems facing the telecommunications industry that hinder the deployment of IP-Enabled Services. However, in the short to medium term, the Commission can move industry forward by providing a set of refined and clear policies with respect to IP-Enabled Services and the networks that carry them. In the longer term, the Commission may find that laws designed to govern legacy telecommunications networks are fundamentally inapplicable to IP-Enabled Services and may cause regulatory considerations, rather than competition, to dictate the nature and architecture of

deployments of IP-Enabled Services.[3] This is not in the best interest of consumers. Thus, the changing nature of telecommunications technologies and the competitive conditions within the industry may result in Congress ultimately taking action to reform the Communications Act of 1934 to eliminate any sources of uncertainty that may be embedded in the statute.

IV. Regulations and Policies Governing IP-Enabled Services Should be Technologically Neutral and Support Certain Public Interest Objectives

Given the importance and vast potential of IP-Enabled Services, Lucent believes that the following issues must be addressed by the Commission in this proceeding in order to ensure the successful creation of an appropriate regulatory regime governing IP-Enabled Services.

A. Regulations Governing IP-Enabled Services Should Promote and Facilitate Broadband Deployment

IP-Enabled Services have the potential to create new, innovative, and inexpensive ways for individuals and businesses to communicate all manner of information. These services cannot be accessed, however, unless a reliable, broadband access platform is available. The Commission must, therefore, ensure that its regulations governing IP-Enabled Services promote and facilitate the deployment of the broadband access platforms upon which IP-Enabled Services depend.

[3] Lucent has significant first-hand experience dealing with carriers that initiate capital projects to take advantage of arbitrage opportunities created by the lack of legal clarity in this area or to utilize the legal uncertainty to gain other competitive advantages.

B. Benefits of 3G as a Broadband Access Technology

Ultimately, for Americans to enjoy the full benefits of IP-Enabled Services, IP-Enabled Services must be available across a wide variety of broadband networks using different technology platforms in a truly converged service environment. To help create this environment, the Commission should, in particular, ensure that robust and reliable 3G wireless services are permitted to meet the challenge of providing a real broadband alternative, both from a deployment and regulatory perspective. The next generation of high-bandwidth wireless services is ideally suited to supporting IP-Enabled Services and is rapidly becoming an important alternative to fixed networks for many users.

Lucent believes that rapidly maturing wireless broadband networks, with improved technologies and better coverage, will provide natural platforms for IP-Enabled Services, including exciting new "converged" services that will seamlessly follow a customer across a variety of network platforms without loss of connectivity or quality of service. To facilitate the opportunities that IP-based 3G wireless services present to consumers and business users alike, Lucent recommends the Commission ensure that sufficient allocations of licensed spectrum are available throughout the country. In addition, Lucent believes the Commission must recognize and address the significantly different regulatory frameworks applicable to licensed wireless providers versus traditional wireline and cable providers. The regulatory framework adopted with respect to IP-Enabled Services should be structured to offer wireless providers all of the same opportunities and benefits that any new rules (or forbearance from adopting new rules) offer to DSL and cable modem providers.

C. Certain Public Interest Requirements Are Appropriate

The unprecedented flexibility of IP technology will enable IP-Enabled Service providers to develop and deploy as yet unimagined new and innovative services, and IP-Enabled Services will necessarily become an increasingly important component of our nation's critical communications infrastructure. It is therefore appropriate for the Commission to consider adopting policies to ensure that the providers of IP-Enabled Services address social concerns relating to universal service, emergency services, access for disabled Americans, and surveillance assistance for law enforcement. At the same time, it is in the public interest for the Commission to ensure its actions nurture—rather than smother—IP-Enabled Services so that all Americans can enjoy their myriad benefits.

V. Evolving IP-Based Infrastructure to "Carrier Class"

Lucent believes that, concurrent with the Commission's regulatory analysis, it is in the public interest to assess and address the technical challenges of evolving IP-based infrastructure to "carrier class" in a structured setting to ensure that IP-Enabled Services can be deployed on a national scale with the levels of quality of service, network security, and reliability necessary appropriate for a critical national infrastructure.

With currently deployed technology, unmanaged IP-enabled networks cannot meet the requirements of the "national critical communications infrastructure." For example, the unmanaged Internet is highly susceptible to Denial of Service ("DoS") and

other attacks that could easily disrupt VoIP communications.[4] The unmanaged Internet offers no quality guarantees and, as a result, VoIP communications over this infrastructure can be plagued by gaps and/or noise that can disrupt natural communications. As further discussed in this Section, industry will need to address a variety of technical realities to transform today's "off the rack," unmanaged IP-Enabled Services into the "carrier class," managed IP-Enabled Services that will be pervasive in the future.

A. Managing Flexibility and Complexity

Flexibility often implies complexity in that it allows for the creation of many possible solutions to a particular issue. IP-Enabled Services, however, are flexible in that they can be rapidly developed and deployed in a single network by a number of operators, as well as service and application providers. This flexibility should afford operators, service providers, and end users the opportunity to develop new products and services, new revenue streams, and new ways of using communications quickly and efficiently. These solutions must be harmonized across networks, platforms, and service providers to ensure seamless interoperability and an acceptable end-user experience. The technology used to provide IP-Enabled Services has come a long way in a relatively short time. Although there is more work to be done, Lucent is bullish on the industry's ability to solve the myriad technical issues and thereby achieve "carrier

[4] The need for "carrier class" VoIP is particularly evident in the case of wireless 3G networks where spectrum is still a precious commodity despite current allocations. To protect against malicious disruptions of service in the IP domain, Lucent believes it is necessary to support multiple grades of service over the air interface with the highest to be allocated to voice. Carriers should have the freedom to allocate grades of services to their customers as they see fit.

class" IP networks and services. Special attention needs to be paid to technical solutions that allow IP-Enabled Services, including VoIP, to develop capabilities to meet social policy obligations such as E911, assistance for law enforcement, and disability access. While industry-led efforts to date have led to workable solutions for many of the issues that arise in these important policy areas, Lucent believes that continued collaborative industry effort is required to develop the solutions necessary to meet our national critical communications needs.

B. Improving Reliability, Availability, and Quality of Service

As IP-Enabled Services become an increasingly important part of the nation's critical infrastructure, consumers and businesses will expect IP-Enabled Services to provide the same level of quality of service and reliability that they have come to expect from traditional telephone networks. For example, a hallmark of current telephone networks is the so-called "five 9's" of reliability for access to the network. In fact, in recent years the industry has surpassed this goal and is now approaching "seven 9's" of availability in certain cases—users will complete their telephone calls 99.99999 percent of the time. Industry should foster the technical innovations necessary to make IP-based networks equally reliable and help eliminate the technological problems currently inherent in many IP-based networks.

Lucent is confident that there are standards-based approaches to significantly improving packet-based services for the industry.[5] SIP, which Lucent's Bell Labs helped

[5] Lucent Technologies recently received a patent for improving the quality of service for VoIP networks. This patent, U.S. No. 6,529,499, was also the 30,000th patent Bell Labs has received since its inception in 1925. *Technology Review*, MIT's

develop, is a global, standards-based IP telephony signaling protocol primarily used for making VoIP calls and attaching voice and other sound clips to email and instant messaging over a broad variety of IP-based integrated access devices, including personal digital assistants, mobile IP phones, IP-PBXs, and personal computers. SIP is considered a chief enabler of enhanced service offerings and is recognized to have the potential to support a variety of SIP-enabled applications, including media-intensive applications such as audio-conferencing, call centers, unified messaging, electronic commerce applications (e.g., Webtalk), and interactive voice response, as well as the integration of VoIP and WiFi (e.g., Bluetooth). SIP improves network efficiency and reduces some barriers for convergence by reducing bandwidth requirements for call setup/teardown. However, the potential of VoIP may remain largely unrealized until technologies such as SIP enable the service quality and reliability of VoIP to match that of today's telephone networks.

Making VoIP more reliable is a challenge because the Internet was not built for steady-state, real-time communications, such as voice calls and streaming video. In the circuit-switched world, network congestion is managed by reserving a point-to-point connection between two parties in a call. In a connectionless IP network, data packets are routed through the network with no regard for the congestion created by this traffic. This can result in lost or delayed traffic, which is acceptable for applications such as email where lost packets are retransmitted and merely delay the delivery of the email. However, when packets are lost or delayed during real-time voice or other interactive

---

magazine of innovation, has selected this patent as one of its "Five Killer Patents" for 2004.

communications, the person on the receiving end might hear gaps in the communication, or their connection may be dropped altogether.

A major obstacle in deploying VoIP and other real-time IP services is network capacity and how the capacity is managed. By adding more VoIP calls and other traffic to the Internet, network links can become overburdened, resulting in quality problems affecting both new calls being placed over the network and calls in progress. Simply adding more capacity is not an effective solution, since network demand (i.e., traffic volume) continues to grow exponentially, and adding more capacity at the right places in the network requires careful planning and intricate knowledge of traffic demands. The anticipated long-term solution is an IP-based MultiProtocol Label Switching ("MPLS") implementation that utilizes specialized routing software that adds priorities to IP traffic, particularly to prioritize time-sensitive traffic such as VoIP, video-on-demand, and multimedia applications. IP/MPLS is beginning to find success in the core of carrier networks, but has yet to really penetrate packetized voice applications or equipment.

Lucent believes standards-based solutions can be developed and deployed to alleviate congestion and improve VoIP quality. For example, software-based virtual provisioning servers currently under development and Connection Resource Managers ("CRM") can monitor network demand and create "virtual trunk groups" where information flows uninterruptedly between senders and receivers. Further, when a user attempts to make a VoIP call or to view a streaming video, the CRM checks whether there are enough network resources along a path to accommodate the request. If there are, then the new call is allowed and uninterrupted communication with acceptable loss and delay is guaranteed. If the path between sender and receiver does not have

enough network capacity, new requests for sessions may be denied, then re-routed to a different path with enough capacity, thus preventing any new sessions from adversely affecting ongoing VoIP conversations.

C. Guaranteeing Interconnection

A fundamental principle of U.S. communications policy is the requirement that network operators provide direct or indirect interconnection in order to promote competition and ensure that all Americans receive the full benefit of a ubiquitous, nationwide communications network.[6] There are a number of technical issues that must be addressed before the industry can guarantee ubiquitous, efficient interconnection, both between IP-Enabled Services networks and the PSTN and between different IP-Enabled Services networks. For example, the process of comparing and mapping network functionalities between disparate networks remains an ongoing challenge. This requires network interoperability standards (e.g., 3GPP/IMS, IETF, etc.) that must be agreed upon by the industry and followed up with implementation and testing across multi-vendor technology domains. The need for well-defined standards for the interconnection of IP networks that address network requirements for security, topology hiding, quality of service, call accounting, and other issues is critical to the success of IP-Enabled Services. Without direct IP interconnection, end-to-end IP services are not possible, greatly increasing the cost and delaying the introduction of robust commercial VoIP services.

---

[6] *See, e.g.,* 47 U.S.C. § 201 ("It shall be the duty of every common carrier . . . to establish physical connections with other carriers . . . ."); 47 U.S.C. § 251(a) ("Each telecommunications carrier has the duty to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers. . . .").

Further, network access providers and technology providers are starting to deploy specialized IP technologies designed to overcome the quality of service issues described above.[7] These technologies utilize specialized MPLS routing software and, in some cases, managed IP networks to prioritize time-sensitive traffic such as VoIP, video-on-demand, and multimedia applications.

D. Assuring Network Security

IP-based network infrastructures pose significant challenges to carriers that must protect customer traffic from unauthorized users and DoS attacks. VoIP is subject to the same potentially crippling security issues as other data IP traffic, but because of its real-time nature, its vulnerability may be more perilous. Traditional firewalls would be unacceptable for real-time voice traffic because of their latency delays.

Businesses and consumers alike need to develop the same confidence in VoIP as they have in the PSTN today. Especially for unmanaged IP networks, security events including DoS attacks, theft of service, and identity spoofing can have severe impacts on the integrity of critical communications. Work is needed on many fronts to address these vulnerabilities. For example, the industry will need to harden the systems that participate in SIP. Methods will need to be developed for subscriber authentication, as well as preventative schemes to counter DoS attacks and spam, which can be prevalent in IP-based data networks.

[7] The Commission has previously noted the advent of such technologies. *See, e.g.,* NPRM at note 42.

Recently, the network security model developed by Bell Labs was adopted by the ITU as ITU-T Recommendation X.805. This ITU recommendation prescribes a comprehensive approach to proactively combat security threats including hackers, viruses, worms, and a steady stream of software patches. This new global standard will enable businesses, government agencies, and service providers to better implement governance programs that improve network security and eliminate potential threats. The standard provides a comprehensive security management framework under which existing security standards such as X.509 for public key and attribute certificates can be mapped.

Network operators and end users can use the approaches within X.805 to detect, predict, and correct security vulnerabilities across wireless, optical, and wire-line voice, data, and converged networks. It can also be used to assess the security of existing networks and help ensure end-to-end security of distributed applications.

E. Network Management

Robust network management is an essential component needed to create a national "carrier class" critical communications infrastructure. IP-Enabled Services, as part of our critical national communications infrastructure, will place unique requirements on the network management systems that ensure network quality, security, and reliability. These systems provide the necessary monitoring and control mechanisms to allow network operators to detect network congestion and route traffic around this congestion, to detect and mitigate security attacks, to help ensure adequate quality of service needs, and maintain network reliability. The high availability of the existing PSTN is due in large part to the maturity and sophistication of existing TDM-

based network management systems. However, much work is required to enhance these systems to work effectively for IP-Enabled Services.

The reliability, availability, quality of service, interconnection, and security solutions discussed above that are under development by technology innovators such as Lucent will greatly improve IP network management over the next several years, thereby facilitating further deployment of IP-Enabled Services, in particular VoIP. The Commission must ensure that any VoIP regulations that it promulgates do not prevent the implementation of new IP network management technologies, such as SIP, MPLS, RM, and the numerous other technologies that will facilitate VoIP but that have not yet been imagined.[8]

VI. Conclusion

The best means of ensuring that the Commission is able to meet its public interest goals while at the same time providing the telecommunications industry with the flexibility and certainty necessary to promote IP-Enabled Services is for the Commission to craft the IP-Enabled Services regulatory regime in close coordination with industry and, if possible, through industry consensus. The comparatively small market share currently held by IP-Enabled Service providers provides the Commission with a window of opportunity to consider and negotiate with deliberation arrangements with industry,

[8] In addition, the Commission should avoid regulating the provision of IP network management services. Network management services provided to traditional telephone carriers are not regulated and the Commission should ensure that any regulations it develops to govern IP-Enabled Services are sufficiently narrowly tailored that they do not apply to IP network management companies.

rather than hastily adopting regulations governing IP-Enabled Services on a unilateral basis.

It is critical for the Commission to be adequately informed about technical challenges and innovations that will shape the service environment that is under regulatory consideration. To help ensure that IP-Enabled Services are appropriately deployed on a national "carrier class" scale, the Commission should engage industry on an ongoing and structured basis on technical issues. The Commission should both monitor and facilitate the migration of the national communications infrastructure from TDM-based to IP-based networks by actively soliciting on a periodic basis input from the industry regarding the technical issues that could impact the regulation of IP-Enabled Services. This input should not end with the comments and reply comments filed in this proceeding but instead should extend beyond the instant proceeding. Close collaboration with industry along these lines can be a valuable resource for the Commission as IP-Enabled Services and IP networks evolve and thereby raise new regulatory issues under rules drafted to apply to other technologies. Further, such a continuing dialogue will enable the Commission to be a valuable resource and to play a constructive role in any future efforts by Congress to revise the Communications Act of 1934 to take into account new technologies and competitive conditions, including the migration of communications to IP-Enabled Services.

Lucent looks forward to having the opportunity to engage in discussions with FCC officials on the important technical issues and social considerations that surround the deployment of IP-Enabled Services and the broadband access services critical to their future success.

Respectfully submitted,

LUCENT TECHNOLOGIES INC.

By: */s/ Charles Mathias*

Charles Mathias,
Director—Policy,
Lucent Global Government Affairs
1100 New York Avenue, NW
Suite 640 West Tower
Washington, DC 20005
202-312-5908

Martina L. Bradford
Tom W. Davidson
Phil Marchesiello
AKIN GUMP STRAUSS HAUER & FELD LLP
1333 New Hampshire Ave, N.W.
Washington, DC 20036
202-887-4000

Its attorneys

Dated: May 28, 2004